

A Jupiter-mass planet around the K0 giant HD 208897

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Abstract

© ESO, 2017. For over 10 years, we have carried out a precise radial velocity (RV) survey to find substellar companions around evolved G, K-type stars to extend our knowledge of planet formation and evolution. We performed high precision RV measurements for the giant star HD 208897 using an iodine (I₂) absorption cell. The measurements were made at TÜBA TAK National Observatory (TUG; RTT150) and Okayama Astrophysical Observatory (OAO). For the origin of the periodic variation seen in the RV data of the star, we adopted a Keplerian motion caused by an unseen companion. We found that the star hosts a planet with a minimum mass of $m \sin i = 1.40 M_J$, which is relatively low compared to those of known planets orbiting evolved intermediate-mass stars. The planet is in a nearly circular orbit with a period of $P = 353$ days at about 1 AU distance from the host star. The star is metal rich and located at the early phase of ascent along the red giant branch. The photometric observations of the star at Ankara University Kreiken Observatory (AUKR) and the Hipparcos photometry show no sign of variation with periods associated with the RV variation. Neither bisector velocity analysis nor analysis of the Ca II and H α lines shows any correlation with the RV measurements.

<http://dx.doi.org/10.1051/0004-6361/201731184>

Keywords

Planetary systems, Stars: fundamental parameters, Stars: individual: HD 208897, Techniques: radial velocities

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